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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/810,938

Applicant(s)

HJARTARSON ET AL.

Examiner

Andrew C. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 13 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Claims 1 – 21 are pending.

Allowable Subject Matter

2. The indicated allowability of claims 19, 21 is withdrawn in view of the newly discovered reference(s) to Timm et al. (US 6522730 B1). Rejections based on the newly cited reference(s) follow.

Claim Objections

3. Claim 15 is objected to because of the following informalities:

Regarding claim 15, the phrase "the acts of" should be corrected as "the steps of".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 – 6, 8 – 16, 18 – 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Timm et al. (US 6522730 B1).

Regarding Claim 1, Timm et al. disclose the limitation of a line interface for coupling a twisted pair telephone line with a communications network (Fig. 1, Fig. 3, "splitter" interpreted as line interface, column 3, lines 32 – 39; "local loops" interpreted as a twisted pair telephone line, column 3, lines 4 – 6), comprising: a broadband analog front end circuit coupling said twisted pair telephone line with said line interface ("splitter" interpreted as a broadband analog front end circuit, column 3, lines 33 – 40); and a programmable filter (Fig. 4, "element 40 programmable filter circuitry" interpreted as a programmable filter, column 4, lines 18 – 26) coupled to receive an output signal from said broadband analog front end circuit and configured to filter frequency bands of said output signal into a plurality of separate, variable bandwidth transmission channels ("the transmitted and received signals are adjusted to accommodate the new upstream and downstream data bands" interpreted as configured to filter frequency bands of said output signal into a plurality of separate, variable bandwidth transmission channels, column 5, lines 1 – 9), wherein said plurality of separate, variable bandwidth transmission channels are associated with said communications network, and wherein said frequency bands and said variable bandwidths are determined by programming said programmable filter ("could transition to a higher speed configuration by using the additional unused voice channel", and "to add the bandwidth provided by the unused voice channel to the downstream band, or to allocate the additional bandwidth to both upstream and downstream channels", column 5, lines 65 – 67, column 6, lines 1 – 16; Fig. 8, column 6, lines 34 – 38).

Regarding Claim 2, Timm et al. disclose the limitation of communications network comprises a data network (Fig. 3, "element 36 to computer network" correlates to a data network, column 3, lines 20 – 22)

Regarding Claim 3, O'Toole et al. disclose the limitation of line interface comprising: an analog to digital converter circuit, coupled between said broadband analog front end circuit and said programmable filter (Fig. 4; element 44 DSL processing and control circuit" interpreted as analog to digital converter circuit, and "element 40 programmable filter circuitry" interpreted as programmable filter), configured to convert said output signal to a digital signal (column 4, lines 31 – 39), wherein said programmable filter is a digital programmable filter (Fig. 4; element 40 as digital programmable filter, column 4, lines 16 – 26).

Regarding Claim 4, Timm et al. disclose the limitation of plurality of separate transmission channels are directed to a plurality of different service providers (Fig. 2, Fig. 3, "voice frequency band between 0 and 3.4 kHz, upstream band using frequency spectrum between 30 KHz and 138 KHz, and downstream band using frequency spectrum between 181 KHz and 1.1 MHz" interpreted as plurality of separate transmission channels, column 3, lines 16 – 24, 32 – 40, voice transmission and data transmission interpreted as different service providers).

Regarding Claim 5, Timm et al. disclose the limitation of plurality of separate transmission channels are directed to a plurality of different modulation schemes (CAP

(carrierless amplitude-phase) modulation and DMT (discrete multitone) modulation, along with other modulation techniques" interpreted as plurality of separate transmission channels are directed to a plurality of different modulation schemes, column 6, lines 57 – 65).

Regarding Claim 6, Timm et al. disclose the limitation of the line interface of said programmable filter is programmed with software ("software control" interpreted as line interface of said programmable filter is programmed with software, column 6, lines 41 – 45).

Regarding Claim 8, Timm et al. disclose the limitation of the line interface wherein said plurality of separate frequency bands are determined according to a protocol including at least one of POTS, ISDN, ADSL, VDSL, SDSL, IDSL, HDSL, and HDSL2 ("ADSL, SDSL, RADSL" correlates to said plurality of separate frequency bands are determined according to a protocol including at least one of POTS, ISDN, ADSL, VDSL, SDSL, IDSL, HDSL, and HDSL2, column 6, lines 61 – 65).

Regarding claim 9, Timm et al. disclose the limitation of the line interface wherein said plurality of separate frequency bands are determined according to a protocol including at least one of POTS, ISDN, ADSL, VDSL, SDSL, IDSL, HDSL, and HDSL2 (CAP (carrierless amplitude-phase) modulation interpreted as said plurality of separate frequency bands are determined according to a protocol including at least one of POTS, ISDN, ADSL, VDSL, SDSL, IDSL, HDSL, and HDSL2, column 6, lines 57 – 65).

Regarding Claim 10, Timm et al. disclose the limitation of the line interface of said ADSL and said POTS coexist on said twisted pair telephone line (Fig. 3, "element 18 local loop" as coexist on said twisted pair telephone line, column 3, lines 32 – 40).

Regarding Claim 11, Timm et al. disclose the limitation of the line interface comprising: a POTS detector circuit coupled to provide a POTS usage signal to said programmable filter indicating that a POTS bandwidth is in use (Fig. 4, element 42, hook detection circuitry" interpreted as a POTS detector circuit coupled to provide a POTS usage signal to said programmable filter indicating that a POTS bandwidth is in use, column 4, lines 15 – 26, "off-hook state" interpreted as indicating that a POTS bandwidth is in use , column 5, lines 20 – 24, lines 57 – 60).

Regarding claim 12, Timm et al. disclose the line interface of claimed wherein an ADSL bandwidth is expended to include said POTS bandwidth when said POTS usage signal indicates that said POTS bandwidth is not in use (column 5, lines 65 – 67, column 6, lines 1 – 16, lines 34 – 40), and said ADSL bandwidth is reduced to exclude said POTS bandwidth when said POTS usage signal indicates that said POTS bandwidth is in use ("when the voice band is being used for voice communications", column 5, lines 57 – 63).

Regarding Claim 13, Timm et al. disclose the limitation of the line interface of claimed wherein said POTS detector circuit detects whether a telephone connected to said twisted pair

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telephone wire is on hook or off hook (Fig. 4, element 42, hook detection circuitry, column 4, lines 39 – 55).

Regarding claim 14, O'Toole et al. disclose the limitation of the line interface of claimed wherein said POTS detector circuit determines if a POTS signal is communicated in said ADSL bandwidth or if said POTS signal is communicated in said POTS bandwidth (Fig. 6, Fig. 7, Fig. 8, column 5, lines 57 – 67, column 6, lines 1 – 16, lines 34 – 40).

Regarding claim 15, Timm et al. disclose the limitation of a method of providing a plurality of services over a twisted pair telephone line (“allows simultaneous voice band connections along with data transmission” interpreted as plurality of services over a twisted pair telephone line, Fig. 2, column 3, lines 16 – 24), comprising the acts of: receiving a broadband analog signal from said twisted pair telephone line (column 3, lines 7 – 10); filtering said broadband analog signal using a programmable filter (Fig. 4, element 40, programmable filter circuitry as programmable filter) into a plurality of separate bands wherein said plurality of separate bands are determined by programming said filter to generate a plurality of variable bandwidth channels (column 5, lines 1 – 9); and transmitting said plurality of separate bands to a plurality of different service providers (Fig. 2, column 3, lines 16 – 24, column 4, lines 46 – 67).

Regarding claim 16, Timm et al. disclose the limitation of the method of claimed wherein said separate bands are transmitted to said plurality of different service providers through a

data network and a voice network (“allows simultaneous voice band connections along with data transmission” interpreted as separate bands are transmitted to said plurality of different service providers through a data network and a voice network, where voice band connections correlates to voice network for voice service provider, and data transmission correlates to data network for data service provider, Fig. 2, column 3, lines 16 – 24).

Regarding claims 18, 20, Timm et al. disclose the limitation of a line interface for coupling a twisted pair telephone line with a communications network (Fig. 1, Fig. 3, “splitter” interpreted as line interface, column 3, lines 32 – 39; “local loops” interpreted as a twisted pair telephone line, column 3, lines 4 – 6), comprising: a broadband analog front end circuit coupling said twisted pair telephone line with said line interface (“splitter” interpreted as a broadband analog front end circuit, column 3, lines 33 – 40); and a programmable filter (Fig. 4, element 40, programmable filter circuitry as programmable filter) coupled to receive an output signal from said broadband analog front end circuit and configured to filter frequency bands of said output signal into a plurality of different transmission channels (“adjusted to accommodate the new upstream and downstream data bands” interpreted as output signal into a plurality different transmission channels, column 5, lines 1 – 9) including: a first transmission channel having a first variable frequency bandwidth (“adjusted to accommodate the new upstream” interpreted as a first transmission channel having a first variable frequency bandwidth, column 5, lines 1 – 9); and a second transmission channel having a second variable frequency bandwidth (“adjusted to accommodate the new downstream data bands” interpreted as a second transmission channel having a second variable frequency bandwidth,

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column 5, lines 1 – 9), wherein said programmable filter can be programmed to adjust a band edge of either said first transmission channel or said second transmission channel to increase or decrease said first and second variable frequency bandwidths, respectively (Fig. 8, column 6, lines 34 – 40).

Regarding claims 19, 21, Timm et al. disclose a third transmission channel having a third variable frequency bandwidth ("voice band" interpreted as a third transmission channel having a third variable frequency bandwidth, column 5, lines 57 – 67, column 6, lines 1 – 9).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 7, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Timm et al. (US 6522730 B1) in view of O'Toole et al. (US 5889856)

Regarding Claim 7, Timm et al. disclose the limitation of a programmable filter (Fig. 4, element 40, programmable filter circuitry). Timm et al. do not disclose explicitly the line interface wherein said software is downloaded to said programmable filter.

O'Toole et al. teach the line interface wherein said software is downloaded to said programmable filter (column 7, lines 54 – 61, recited allow for code updates as software is downloaded).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Timm et al. to include the features of line interface wherein said software is downloaded to said programmable filter as taught by O'Toole et al. in order to provide a dynamically-allocating Digital-Subscriber Line (DSL) modem dynamically allocates bandwidth among voice calls and unchannelized user data (as suggested by O'Toole et al., see column 3, lines 66 – 67, column 4, line 1).

Regarding claim 17, Timm et al. disclose the limitation of a programmable filter (Fig. 4, element 40, programmable filter circuitry). Timm et al. do not disclose claimed wherein said programmable filter is upgraded by programming said filter with software.

O'Toole et al. discloses the limitation of the method of claimed wherein said programmable filter is upgraded by programming said filter with software (recited "the updateable flash ROM and volatile memory allow for code updates, fixes and enhancements"; column 7, lines 54 – 61).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Timm et al. to include the features of claimed wherein said programmable filter is upgraded by programming said filter with software as taught by O'Toole et al. in order to provide a dynamically-allocating Digital-Subscriber Line

(DSL) modem dynamically allocates bandwidth among voice calls and unchannelized user data (as suggested by O'Toole et al., see column 3, lines 66 – 67, column 4, line 1).

Response to Arguments

6. Applicant's arguments filed on 8/13/2007 with respect to claims 1 – 21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Chow et al. (5479447) disclose a method and apparatus for adaptive, variable bandwidth, high-speed data transmission of a multicarrier signal over digital subscriber lines.
- Liu et al. (6065060) disclose a high speed modem is provided which targets the use of a selectable, desirable portion of the total available bandwidth of a channel for achieving a data rate which nevertheless far exceeds that of conventional voice-band modems.
- Harris et al. (5325318) disclose a variable digital filter employs a variable rate sample clock with combinations of various digital filter elements such as an efficient implementation of decimation to achieve various filter realizations allowing a selectable output bandwidth.

- Michaels (US 6608842 B2) disclose an apparatus for facilitating combined POTS and xDSL services at a customer premises.
- Bremer et al. (US 6546090 B1) disclose a method and system are provided for communicating voice and data across a communication link, in a manner that senses and dynamically adapts to the simultaneous transmission of voice information across the local loop.
- Wu (6002722) disclose a modem operating selectively in the voice frequency and higher frequency bands which supports multiple line codes. A DSP is used to implement different existing ADSL line codes on the same hardware platform.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Lee whose telephone number is (571) 272-3131. The examiner can normally be reached on Monday through Friday from 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on (571) 272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you

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would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew C. Lee/::<10/23/2007>

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